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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| <b>(51) International Patent Classification <sup>6</sup>:</b><br><b>A61M 35/00, A61K 9/12</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 96/25194</b><br><b>(43) International Publication Date:</b> 22 August 1996 (22.08.96)                                                |
| <b>(21) International Application Number:</b> PCT/GB96/00292<br><b>(22) International Filing Date:</b> 12 February 1996 (12.02.96)<br><br><b>(30) Priority Data:</b><br>9503119.1 17 February 1995 (17.02.95) GB<br><br><b>(71) Applicant (for all designated States except US):</b> DURAND LIMITED [-/-]; 1 Le Marchant Street, P.O. Box 186, St. Peter Port, Guernsey GY1 4HP (GB).<br><br><b>(71)(72) Applicant and Inventor:</b> JOHNSON, William, Nevil, Heaton [GB/-]; Cliffe House, Village du Putron, St. Peter Port, Guernsey GY1 2TQ (GB).<br><br><b>(72) Inventor; and</b><br><b>(75) Inventor/Applicant (for US only):</b> BAYLIS, Michael, Paul [GB/AU]; P.O. Box 414, Bowral, NSW 2576 (AU).<br><br><b>(74) Agent:</b> HOWDEN, Christopher, A.; Forrester Ketley & Co., Forrester House, 52 Bounds Green Road, London N11 2EY (GB). |           | <b>(81) Designated States:</b> US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).<br><br><b>Published</b><br><i>With international search report.</i> |
| <b>(54) Title:</b> MEDICATION AND APPARATUS AND METHOD OF APPLYING MEDICATION<br><br><b>(57) Abstract</b><br><br>Apparatus for applying medication to an external injury comprises a pressurised container of a liquid medicament under pressure of a propellant and incorporating a foaming agent. Upon depression of a manually operable valve fitted with a nozzle, the medicament is discharged from the nozzle in the form of a foam or mousse, directly onto the injury.                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                                                                                                                          |

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Title: "Medication and apparatus and method of applying medication"

THIS INVENTION relates to medication for application to external injuries such as burns, scalds, cuts or abrasions or for application to legs affected by varicose veins, etc. The invention also relates to apparatus for and a method of applying medication to external injuries.

According to a first aspect of the invention there is provided apparatus for applying medication to an external injury comprising a dispenser adapted to dispense medication, in the form of a mousse or foam, directly onto such injuries.

According to a second aspect of the invention there is provided a medication for application to external injuries, the medication comprising any of the following alone or in combination:

- Eucalyptus oil
- Menthol
- Salicylic acid
- Resorcinol
- Chlorobutol
- Methyl salicylate
- Phenol
- Oil citronella
- Oil cloves
- Industrial methylated spirit
- Glacial acetic acid
- Lignocaine alkaloid

Preferably the medication additionally comprises a wool alcohol ointment and/or white soft paraffine (petroleum jelly).

In a preferred embodiment of the invention, a medication according to the second aspect of the invention is incorporated in a dispenser according to the first aspect of the invention for dispensing thereby in the form of a mousse or foam.

According to a further aspect of the invention there is provided a dressing for external injuries including a moisture permeable pad impregnated with a medicament according to the second aspect of the invention.

In a preferred embodiment of the invention, a dispensing apparatus is provided in the form of a pressurised container with a manually operable dispensing valve, known *per se*, the container containing a quantity of a liquid medicament under pressure of a propellant and incorporating a foaming agent whereby when the valve is operated manually, the liquid is dispensed from the dispenser in the form of a foam or mousse.

The dispenser preferably has a suitable nozzle to facilitate application of the foam or mousse to a desired wound location. Indeed, the dispenser may be supplied with a plurality of interchangeable nozzles appropriate to different injuries or treatment situations. For example, one such nozzle may have a wide flat outlet for dispensing a wide ribbon of the foam or mousse, another nozzle may have an outlet in the form of a narrow bore for dispensing a fine strand of the foam or mousse, another nozzle may have an outlet in the form of a wider bore for dispensing a more substantial body of foam or mousse, and so on.

A preferred medication comprises a mixture, with wool alcohols ointment and white soft paraphine, of a mixture of oils and other ingredients, referred to below, for convenience, as "Mixture A" and constituted as follows:-

| <u>Mixture A</u>                          |        |
|-------------------------------------------|--------|
| Eucalyptus oil                            | 260 ml |
| Menthol                                   | 66 g   |
| Salicylic acid                            | 20 g   |
| Resorcinol                                | 56 g   |
| Chlorobutol                               | 240 g  |
| Methyl salicylate<br>(not Lin. Meth. Sal) | 128 ml |
| Phenol crystals                           | 160 g  |
| Oil citronella                            | 200 ml |
| Oil cloves                                | 160 g  |
| Industrial meths                          | 472 ml |
| Glacial acetic acid                       | 48 ml  |
| Lignocaine alkaloid                       | 400 g  |

The above quantities produce 2 litres of mixture A. Mixture A above was used in preparation of an ointment having the composition set out below:-

|                        |        |
|------------------------|--------|
| Mixture A              | 125 ml |
| Wool Alcohols Ointment | 1 kg   |
| W.S.P.                 | 4 kg   |

In preparation of the ointment, the 125 ml of Mixture A was mixed with about 300 grams of wool alcohol ointment (warmed if necessary) and shaken until the components "gelled" together. The remainder of the above-noted ingredients was added and the whole mixed thoroughly.

It will be appreciated that Mixture A set out above is a concentrate and is not intended to be applied to the body in that concentrated form but only in dilution with a matrix material such as the wool alcohols ointment and white soft paraphine mixture referred to.

Whilst, in the preferred embodiment of the invention, the medication described above is incorporated in a pressurised foam dispenser, the medication may also be supplied in jars in the conventional way. Alternatively, the medication may be used to impregnate a moisture-permeable pad of a sticking plaster or other dressing, the sticking plaster or dressing, with the medication-impregnated pad being stored, in sterile condition, in a sealed package until required.

It will be appreciated that forms of medication other than that recited above may, in accordance with the invention, be dispensed in the form of a mousse or foam, including medications which are not strictly speaking liquid at the temperature, but for example in the form of a gel, such as petroleum jelly and medicaments having a petroleum jelly base.

It is also possible for the material dispensed in the form of a foam or mousse to be such that, after application, it will cure to form a flexible protective foam covering over the site of the injury, thereby serving as a substitute for a sticking plaster or dressing. If desired, different medications may be supplied in similar dispensers embodying the invention, and the medications may be coloured to indicate the kind of medication used. For example, a setting medication may be of one colour; a medication specifically intended for burns may be of a different colour, and so on.

When the medication is supplied in a mousse-dispensing container, the container is pressurised by an appropriate propellant and foaming agent selected so as to be non-injurious to the patient and so as to be compatible with the medication. In appropriate cases, the propellant or foaming agent may be, or include, a component having healing properties, for example, oxygen or carbon dioxide, for example, depending upon the treatment requirements. The medication may also, if desired, incorporate a local anaesthetic. It will be appreciated that the propellant may also act as the foaming agent. However, the propellant and foaming agent may be distinct from one another.

The medication may incorporate a bleeding retarder or styptic.

Application of a suitable medication in the form of a mousse to external injuries has various advantages. For example, it can be applied without contact of anything but the mousse with the injury and serves to cover the injury rapidly and thereby exclude germs etc. Such a procedure has particular advantages, for example, in treating minor cuts and abrasions in small children or rashes such as "nappy rash", since the injury need not be touched and there is less chance of hurting the child. Furthermore the concealment of the injury by the mousse tends to minimise the child's alarm at the sight of the injury and provides reassurance.

Application in the form of a mousse also has advantages in more serious situations, as, for example, where injured persons are trapped so that an injury is not readily accessible for the application of normal wound dressings etc. For such situations the dispenser may be fitted with a substantially elongate nozzle or nozzle

extension which can readily be extended through relatively small openings to allow medication to be applied to injuries which can be seen but not readily reached by more conventional means, so that such medication can be applied, as a first-aid measure, even before trapped injured persons can be freed.



## CLAIMS

1. Apparatus for applying medication to an external injury comprising a dispenser adapted to dispense medication, in the form of a mousse or foam, directly onto such injuries.

2. A medication for application to external injuries, the medication comprising any of the following alone or in combination:

- Eucalyptus oil
- Menthol
- Salicylic acid
- Resorcinol
- Chlorobutol
- Methyl salicylate
- Phenol
- Oil citronella
- Oil cloves
- Industrial methylated spirit
- Glacial acetic acid
- Lignocaine alkaloid

3. The medication of claim 2 additionally comprising a wool alcohol ointment and/or white soft paraphine (petroleum jelly).

4. Apparatus according to claim 1 including a medication according to claim 2 or claim 3 within said dispenser for dispensing said medication in the form of a mousse or foam.

5. A dressing for external injuries including a moisture permeable pad impregnated with a medicament according to claim 2 or claim 3.

6. Apparatus according to claim 1 or claim 4 comprising a pressurised container with a manually operable dispensing valve, the container containing a quantity of a liquid medicament under pressure of a propellant and incorporating a foaming agent whereby when the valve is operated manually the liquid is dispensed from the dispenser in the form of a foam or mousse.

7. Apparatus according to claim 6 including a nozzle for application of the foam or mousse to a desired wound location.

8. Apparatus according to claim 7, including a plurality of interchangeable nozzles appropriate to different injuries or treatment situations.

# INTERNATIONAL SEARCH REPORT

Int. Application No  
PCT/GB 96/00292

## A. CLASSIFICATION OF SUBJECT MATTER

A 61 M 35/00, A 61 K 9/12

According to International Patent Classification (IPC) or to both national classification and IPC 6

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A 61 K, A 61 M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                        | Relevant to claim No. |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | US, A, 5 143 717<br>(R.C. DAVIS) 01 September<br>1992 (01.09.92),<br>the whole document.                                                                                  | 1-4,<br>6, 7          |
| A          | --                                                                                                                                                                        | 8                     |
| X          | WO, A, 92/11 839<br>(L. MACKLES et al.)<br>23 July 1992 (23.07.92),<br>the whole document,<br>especially page 4,<br>lines 21-30;<br>examples 1, 7-10; claims 1,<br>6, 12. | 1-4                   |
| A          | --                                                                                                                                                                        | 6, 7                  |
| X          | EP, A, 0 423 695<br>(STERLING DRUG) 24 April 1991<br>(24.04.91),                                                                                                          | 1-4                   |

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

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Date of the actual completion of the international search  
17 April 1996

Date of mailing of the international search report

24.05.98

### Name and mailing address of the ISA

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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|          | the whole document.<br>--                                                                                                                        |                       |
| X        | DATABASE WPIL,<br>no. 88-180 556,<br>DERWENT PUBLICATIONS LTD.,<br>London;<br>& JP,A,63 119 420<br>(HISAMITSU PHARM KK et al.),<br>abstract.     | 1,2,<br>4,6           |
| A        | --                                                                                                                                               | 3,7                   |
| X        | US, A, 5 322 683<br>(L. MACKLES et al.)<br>21 June 1994 (21.06.94),<br>the whole document,<br>especially claim 1; abstract.                      | 1,2,<br>4,6           |
| Y        | --                                                                                                                                               | 7                     |
| A        | --                                                                                                                                               | 3                     |
| Y        | US, A, 5 059 187<br>(CH. R. SPERRY et al.)<br>22 October 1991 (22.10.91),<br>the whole document,<br>especially claim 1; abstract.                | 7                     |
| X        | EP, A, 0 395 329<br>(SMITH KLINE) 31 October<br>1990 (31.10.90),<br>the whole document,<br>especially page 3,<br>lines 20-25,40-44.              | 1,6                   |
| A        | --                                                                                                                                               | 2-4,7                 |
| X        | DATABASE WPIL,<br>no. 83-45 392K,<br>DERWENT PUBLICATIONS LTD.,<br>London;<br>JP,A,58 055 417<br>(NITTO ELECTRIC IND KK),<br>abstract.           | 2,5                   |
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|          | ----                                                                                                                                             |                       |

# ANHANG

zum internationalen Recherchen-  
bericht über die internationale  
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# ANNEX

to the International Search  
Report to the International Patent  
Application No.

# ANNEXE

au rapport de recherche inter-  
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PCT/GB 96/00292 SAE 125405

In diesem Anhang sind die Mitglieder  
der Patentfamilien der im obenge-  
nannten internationalen Recherchenbericht  
angeführten Patentdokumente angegeben.  
Diese Angaben dienen nur zur Unter-  
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This Annex lists the patent family  
members relating to the patent documents  
cited in the above-mentioned inter-  
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La présente annexe indique les  
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| US A 5322683                                                                                                                                               | 21-06-94                                                                       | keine - none - rien                                                                                                                                                                                                                 |                                                                                                                                                                      |
| US A 5059187                                                                                                                                               | 22-10-91                                                                       | keine - none - rien                                                                                                                                                                                                                 |                                                                                                                                                                      |
| EP A2 395329                                                                                                                                               | 31-10-90                                                                       | AT E 124261<br>AU A1 53672790<br>AU B2 623245<br>CA AA 2014889<br>DE CO 69020422<br>DE T2 69020422<br>EP A3 395329<br>EP B1 395329<br>GB A0 8909559<br>JP A2 2295928<br>NZ A 232415<br>PT A 93884<br>US A 5082651<br>ZA A 9003127   | 15-07-95<br>01-11-90<br>07-05-92<br>26-10-90<br>03-08-95<br>16-11-95<br>21-11-91<br>28-06-95<br>14-06-89<br>06-12-90<br>28-05-91<br>20-11-90<br>21-01-92<br>24-12-91 |